

CLAIMS

1. A dewatering fabric for use in dynamic condensation drying apparatus comprising a multi-layer fabric.
- 5 2. A dewatering fabric according to claim 1, wherein the fabric comprises a paper contacting surface layer and a core having a high void volume, the core having a machine side surface.
3. A dewatering fabric according to claim 2, wherein a third layer comprising a machine side surface layer is provided on the machine
10 side surface of said core.
4. A dewatering fabric according to claim 3, wherein the paper contacting surface layer is relatively the finest of the layers, being composed of closely spaced yarns, fibres or particles of small diameter and the machine side surface layer is of intermediate
15 fineness being composed of yarns, fibres or particles of a larger diameter and more loosely spaced than those of the paper contacting surface layer.
5. A fabric according to claim 3, wherein the core is composed of widely spaced yarns, fibres or particles, or of a perforated sheet or
20 membrane layer.
6. A fabric according to any preceding claim wherein regions of the fabric are treated to render said regions more, or less, hydrophilic.
7. A dewatering fabric according to claim 2 or 3, comprising a core of a woven base cloth, a single or composite perforated membrane or
25 a spiral-link base cloth, having a batt of staple fibres needled to each face of the base cloth.

8. A fabric according to claim 7 wherein the core is filled with a porous material.

9. A fabric according to claim 8, wherein said porous material filling the core comprises an open celled foam or a sintered plastics material.

10. A fabric according to claim 7, wherein the fibrous batt is coated with a resin and then perforated.

11. A fabric according to claim 2 or 3 wherein at least one layer of the fabric comprises a sintered structure formed from beads, fibres or other particles of thermoplastics or metal, partially melted and fused together.

12. A fabric according to claim 11 wherein the sintered structure further contains a textile reinforcement such as chopped fibres, a woven fabric felt, a non-woven fabric, membrane or yarns, at least partially encapsulated in the sintered structure.

13. A fabric according to claim 2 or 3 wherein at least one layer of the fabric comprises a microporous open cell foam coated structure.

14. A fabric according to claim 2 or 3 comprising a laminate of a sintered polymer, coating, fine staple batt layer or composite membrane on a core of a spiral link or open structure with a further fine layer of the same or different material as the upper layer on the underside.

15. A fabric according to any preceding claim made from materials having high resistance to high temperature and hydrolysis, such as PPS, PEEK, PEK, polyamide, fluoropolymer, glass, metal, PEN or PBM.

16.A fabric according to claim 15 wherein less resistant materials are used in parts of the fabric which are at least partially insulated from the hot jet or roll by the high temperature resistant material, such as nylon, PET, PBT, PTT, PCTA or polyesteramides.

5 17.A fabric according to claim 2 wherein the surface layer and the core are constituted by a single structure providing zones of differing mean void volume.

10 18.A fabric according to claim 17 comprising a two-ply woven core zone of relatively coarse cross-machine direction or weft yarns and superposed thereon on the paper side of the fabric, a two-ply woven zone of relatively fine cross-machine direction or weft yarns.

15 19.A fabric according to claim 18 wherein the layers are interwoven by means of warp yarns which interlink the weft yarn plies into a single woven structure.

20.A fabric according to claim 18 or 19 comprising a further ply of finer weft yarns on the cylinder side of the core zone which are bound into the weave structure by warp yarns which pass about the further yarns and the lower ply of the core yarns.

20 21.A fabric according to claim 17 wherein the core zone comprises a single ply of larger diameter weft yarns.

22.A fabric according to claim 2 comprising a relatively fine woven layer laminated to the paper side of a perforated membrane of synthetic plastics material or resin impregnated fibrous material..

25 23.A fabric according to claim 22 wherein the perforations of the membrane are tapered with their wider ends adjacent the fine

woven layer, and their narrower ends opening from the surface of the membrane at the cooling cylinder side.

24. A fabric according to claim 23 wherein the tapering perforations comprise two notional zones of different void volume, the wider ends forming a core zone of greater void volume, and the narrower ends a cylinder side zone of lower void volume.

25. A fabric according to claim 22 wherein the perforations are stepped.

26. A fabric according to claim 2, 3 or 17 which comprises a structure of sintered particles bonded together by fusion over contact zones, with interstices between the particles, the structure providing a core zone of relatively large particles with large spaces between them and an outer zone on the paper side with relatively fine particles defining a paper contacting surface.

27. A fabric according to claim 26 comprising a further zone on the cylinder side, of relatively fine particles which define a cylinder contacting surface, these zones being created by laying down different sized particles as the structure is built up.

28. A fabric according to claim 26 or 27 wherein the zones are merged by transition regions wherein the particle size decreases towards the respective surface.

29. A fabric according to any one of claims 26 to 28 wherein the structure of sintered particles includes reinforcing fibres.